FEBRUARY 1, 1990 WATER SUPPLY OUTLOOK REPORT

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GENERAL OUTLOOK

Most areas show improvement in snowpack conditions for the past month. Snowpacks vary from below average in southwest Montana to above average in the northwest and northcentral parts of the state. Mountain precipitation was generally near to well above average in January. Most reservoirs have near to above average storage except for those in southwest Montana. Streams, west of the Divide, are forecast to have below to near average runoff conditions except on the Flathead and Kootenai Basins where flows are expected to be near or above average. East of the Divide, most areas should have near to above average runoff except for streams in the southwest part of the state. Surface Water Supply Indexes (SWSI) range from -2.4 in the Beaverhead River Drainage to +3.4 in the Sun River Drainage.

SNOWPACK

Snowpacks generally range from below average in the southwestern part of the state to above and well above average in central and northcentral Montana. January snowfall brought significant improvement to the below average snowpack conditions that existed in western Montana near the first of the year. West of the Continental Divide, snowpacks range from a low of about 80 percent of average on the West Fork of the Bitterroot River and Flint Creek to a high of about 115 percent of average on the North and South Forks of the Flathead River. The Flathead and Kootenai Basins generally show near to slightly above average snowpacks while the Clark Fork and Bitterroot Basins report slightly below average conditions. East of the Divide, near to above average snowpack conditions exist in all areas except in the Big Hole, Jefferson and Upper Madison drainages, where snowpacks range from about 65 percent of average on the Beaverhead to 85 percent of average on the Ruby, Boulder and Madison River drainages. The St. Mary, Sun, Teton, Marias, Judith and Musselshell drainages all have above average snowpacks. Mountain ranges in northern Wyoming, feeding the Little Bighorn, Tongue and Powder Rivers of southeastern Montana, also have above to well above average snowpacks. Usually by this time of year, about 60 percent of the season's snowpack is on the ground.

PRECIPITATION

January mountain precipitation ranged from a little below average in the Gallatin River Drainage to near average in the Upper and Lower Yellowstone, Smith, Judith and Musselshell River drainages. Well above average precipitation was reported in all remaining areas of the state. Many high elevation sites received over 15 inches of precipitation during the month.

RESERVOIRS

Most irrigation reservoirs have near to above average storage levels except for Lima, Clark Canyon and Deadman's Basin. Canyon Ferry, Flathead Lake and Fort Peck have below average storage while other large multipurpose reservoirs generally have near to above average storage.

STREAMFLOW

West of the Divide, streamflow forecasts vary from above 75 percent of average on the Flint Creek Drainage in the Upper Clark Fork Basin to about 110 percent of average on the Flathead and Kootenai River Basins. East of the Divide, forecasts vary from about two-thirds average on the Red Rock River in southwest Montana to about 120 to 130 percent of average from most streams flowing out of the northcentral and central areas of Montana. The majority of drainages should have near average runoff this spring and summer.

SOIL MOISTURE

Moisture stored in the soil under the snowpack is generally near to a little above average in the northern parts of the state, near to a little below average in central and southcentral Montana and below average in southwest Montana.

SURFACE WATER SUPPLY INDEX

The Soil Conservation Service has implemented a program to calculate a Surface Water Supply Index (SWSI) for various basins in Montana. SWSI is a measure of available surface water supplies during spring and summer months. The index ranges from -4.0 to +4.0. A SWSI of -4.0 represents an extremely dry situation, 0 is a near normal situation and +4.0 represents an extremely wet situation. The SWSI provides a scale to evaluate various levels of dryness or wetness and provides a means to compare or evaluate conditions across the state. SWSI considers snowpack, mountain precipitation, soil moisture and reservoir storage.

SWSI SCALE

SWSI	DESIGNATION
+3.0 to +4.0	Extremely wet
+2.0 to +3.0	Moderately wet
+1.0 to +2.0	Slightly wet
-1.0 to +1.0	Near average
-1.0 to -2.0	Slightly dry
-2.0 to -3.0	Moderately dry
-3.0 to -4.0	Extremely dry

Currently, SWSI has been developed for the following drainages. This list will expand as SWSI's for other basins are developed.

SWSI as of February 1, 1990

SWSI	BASIN
-0.5	Clark Fork River above Blackfoot River
+0.6	Blackfoot River
-0.6	Bitterroot River
-2.4	Beaverhead River
-0.9	Ruby River
-1.6	Big Hole River
+0.1	Boulder River (Jefferson)
-1.5	Madison River
-0.3	Gallatin River
+2.1	Smith River
+3.4	Sun River
+3.3	Marias River
+0.4	Musselshell River
+0.5	Yellowstone River above Livingston
-0.2	Shields River
+0.6	Boulder River (Yellowstone)
+0.8	Stillwater River (Yellowstone)
+0.8	Clarks Fork River
+0.6	Yellowstone River above Bighorn
+2.9	Tongue River
+3.1	Little Bighorn River

KOOTENAI RIVER BASIN in Montana

Snowpack is a little above average in Canada and in the Tobacco River headwaters, a little below average in the Yaak and near average on the Fisher and the Kootenai Main Stem in Montana. January mountain precipitation was about twice average. Spring and summer streamflows are forecast to be near or a little above average. April-September streamflow projections range from 75 to 100 percent of average.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
KOOTENAI bl Libby Dam (1,2)	APR-JUL	5180	5950	6490	110	7030	7770	5885
	APR-SEP	6070	6970	7610	110	8250	9110	6903
FISHER nr Libby	APR-JUL	193	235	260	108	285	325	240
	APR-SEP	205	245	275	107	305	345	256
YAAK nr Troy	APR-JUL	330	410	465	94	520	600	494
	APR-SEP	345	430	490	95	550	635	517
KOOTENAI at Leonia (1,2)	APR-JUL	6310	7330	7980	109	8630	9690	7340
	APR-SEP	7260	8430	9180	109	993011100		8441

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LAKE KOOCANUSA	5748.0	2966.0	1731.0	2484.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
EAST KOOTENAI in B.C.	12	126	113
KOOTENAI MAINTSTEM in MT	18	107	100
TOBACCO	5	113	117
FISHER	1	128	96
YAAK	7	94	88
KOOTENAI in MT	24	105	98
KOOTENAI ab Bonners Ferry	36	109	101

FLATHEAD RIVER BASIN

January mountain precipitation was about 180 percent of average. The snowpack is a little above average in the Stillwater, Whitefish and North and South Forks of the Flathead River drainages. The Swan, Mission Valley and the South Fork Flathead River drainages have near average snowpack while the Little Bitterroot and Jocko drainages show a little below average snowcover. Streamflow is forecast to be near or a little above average on most streams. The forecasts range from 100 to 110 percent of average.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
NF FLATHEAD nr Columbia Falls	APR-JUL	1490	1670	1790	105	1910	2090	1701
	APR-SEP	1640	1840	1980	105	2120	2320	1880
MF FLATHEAD nr West Glacier	APR-JUL	1560	1740	1860	111	1980	2160	1680
	APR-SEP	1700	1900	2030	111	2160	2360	1836
SF FLATHEAD nr Columbia Fls (1,2)	APR-JUL	1740	2110	2280	108	2450	2820	2110
	APR-SEP	1850	2250	2430	108	2610	3010	2248
FLATHEAD at Columbia Falls (2)	APR-JUL	4840	5680	6060	108	6440	7280	5621
	APR-SEP	5270	6190	6600	108	7010	7930	6114
SWAN nr Bigfork	APR-JUL	515	575	620	104	665	725	597
	APR-SEP	580	650	700	102	750	820	683
FLATHEAD nr Polson (1,2)	APR-JUL	6010	6710	7190	109	7670	8370	6586
	APR-SEP	6530	7290	7810	109	8330	9090	7150

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CAMAS (4)	45.2	15.5	6.2	20.1
MISSION VALLEY (8)	100.0	48.4	21.7	36.8
HUNGRY HORSE	3451.0	2590.0	1520.0	2406.0
FLATHEAD LAKE	1791.0	924.3	782.6	1133.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		LAST YR.	AVERAGE
NORTH FORK FLATHEAD	14	117	114
MIDDLE FORK FLATHEAD	7	123	115
SOUTH FORK FLATHEAD	7	102	101
STILLWATER-WHITEFISH	5	109	110
SWAN	9	94	100
MISSION VALLEY	3	101	102
LITTLE BITTERROOT-ASHLEY	5	105	90
JOCKO	5	86	87
FLATHEAD	39	107	106

UPPER CLARK FORK RIVER BASIN

Snowpack is 10 to 20 percent below average. January mountain precipitation was about 125 percent of average. Forecasts of spring and summer streamflows call for below average runoff in most drainages. Forecasts range from about 75 to 90 percent of average. The Surface Water Supply Index (SWSI) is -0.5 for the Clark Fork River above the Blackfoot and +0.6 for the Blackfoot River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
MOULTON RES inflow (million gal.)	APR-JUN	95	149	185	79	220	275	233
	APR-JUL	104	164	205	80	245	305	257
WARM SPRINGS CK nr Anaconda (2)	APR-JUL	20	27	31	79	35	42	39
	APR-SEP	24	33	38	78	44	52	49
FLINT CK nr Southern Cross (2)	APR-JUL	5.6	8.9	11.2	76	13.5	16.8	14.8
	APR-SEP	6.8	10.8	13.5	76	16.2	20	17.8
FLINT CK bl Boulder Ck	APR-JUL	25	39	48	79	57	71	61
	APR-SEP	32	49	61	78	73	91	78
LOWER WILLOW CK RES inflow	APR-JUL	6.8	10.1	12.4	83	14.7	18.0	14.9
	APR-SEP	7.1	10.7	13.1	83	15.5	19.1	15.8
MF ROCK CK nr Philipsburg	APR-JUL	39	50	58	84	66	77	69
	APR-SEP	43	55	64	83	73	85	77
NEVADA CK nr Finn	APR-JUL	10.0	14.0	18.0	84	21	26	21
	APR-SEP	11.0	15.0	19.0	86	22	27	22
BLACKFOOT nr Bonner	APR-JUL	635	725	790	90	855	945	874
	APR-SEP	700	805	875	90	945	1050	969
CLARK FORK ab Milltown	APR-JUL	385	525	620	88	715	855	703
	APR-SEP	440	605	715	88	825	990	812
CLARK FORK ab Missoula	APR-JUL	815	1170	1410	89	1650	2000	1577
	APR-SEP	920	1320	1590	89	1860	2260	1781

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
GEORGETOWN LAKE	31.0	26.5	25.3	27.2
LOWER WILLOW CREEK	4.9	3.5	0.7	1.5
NEVADA CREEK	12.6	6.7	1.0	4.6

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
CLARK FORK ab FLINT CREEK	19	96	84
FLINT CREEK	8	88	81
ROCK CREEK	1	106	92
CLARK FORK ab BLACKFOOT	28	95	84
BLACKFOOT	15	85	84
UPPER CLARK FORK	40	91	84

BITTERROOT RIVER BASIN

Mountain precipitation was about 135 percent of average in January. The snowpack is 15 to 20 percent below average in the headwaters of the East and West Forks and on the east side. The west side has a little better snowpack. Storage in Como Reservoir is a little above average. Streamflow is forecast to be near to a little below average with the lowest flows expected in the Skalkaho Creek and Burnt Fork Creek drainages. The Surface Water Supply Index (SWSI) is -0.6 for the Bitterroot River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
WF BITTERROOT nr Conner (2)	APR-JUL	90	115	131	89	148	172	147
	APR-SEP	102	130	149	88	168	196	169
BITTERROOT nr Darby	APR-JUL	335	420	480	92	540	625	524
	APR-SEP	365	460	525	92	590	685	573
ROCK CK nr Darby (2)	APR-JUL	61	70	76	95	82	91	80
	APR-SEP	64	74	80	95	86	96	84
SKALKAHO CK nr Hamilton	APR-JUL	33	38	41	85	44	49	48
	APR-SEP	38	44	48	86	52	58	56
BURNT FORK CK nr Stevensville (2)	APR-JUL	17.0	22	26	87	30	35	30
	APR-SEP	20	27	31	86	35	42	36
BITTERROOT at Missoula	APR-JUL	880	1110	1260	92	1410	1640	1371
	APR-SEP	955	1200	1370	92	1540	1790	1497

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
PAINTED ROCKS LAKE		NO REPORT		
COMO	34.9	13.5	9.9	11.4

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
WEST FORK BITTERROOT	6	77	79
EAST SIDE BITTERROOT	2	104	84
WEST SIDE BITTERROOT	6	99	93
BITTERROOT	14	91	87

LOWER CLARK FORK RIVER BASIN

Snowpack is currently a little below average. January mountain precipitation was about 150 percent of average. Spring and summer streamflows are forecast to range from slightly below to near average. Forecasts generally range from 90 to 100 percent of average.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE		--WETTER--->			
		-----	CHANCE OF EXCEEDING *			-----		
CLARK FORK ab Missoula	APR-JUL	815	1170	1410	89	1650	2000	1577
	APR-SEP	920	1320	1590	89	1860	2260	1781
CLARK FORK bl Missoula	APR-JUL	2080	2430	2670	91	2910	3260	2948
	APR-SEP	2310	2700	2960	90	3220	3610	3276
CLARK FORK at St. Regis (1)	APR-JUL	2060	2970	3560	91	4150	5060	3894
	APR-SEP	2290	3300	3960	92	4620	5620	4325
CLARK FORK nr Plains (1,2)	APR-JUL	8030	9820	11000	101	12200	14000	10850
	APR-SEP	8830	10800	12100	101	13400	15400	11930
THOMPSON nr Thompson Falls	APR-JUL	163	197	220	99	245	275	222
	APR-SEP	181	220	245	98	270	310	250
PROSPECT CK at Thompson Falls	APR-JUL	90	112	126	98	140	162	128
	APR-SEP	97	120	135	99	150	173	137
CLARK FORK at Whitehorse Rpds (1,	APR-JUL	8380	10500	11900	98	13300	15300	12150
	APR-SEP	9230	11600	13100	98	14600	16800	13370

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
NOXON RAPIDS	335.0	317.0	325.1	314.2

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
UPPER CLARK FORK	40	91	84
BITTERROOT	14	91	87
LOWER CLARK FORK	18	97	89
CLARK FORK TOTAL	67	92	86
FLATHEAD	32	109	109
PEND OREILLE	100	100	95

JEFFERSON RIVER BASIN

Mountain precipitation was about 120 percent of average for January. However, the snowpacks are still below average in all drainages. The area around Lakeview continues to show well below average snowpack. Reservoir storage increased during the month but continues to be about one-half of average. Streamflows are forecast range from about two-thirds of average from the Red Rock River to near average on the Boulder River. Surface Water Supply Indexes (SWSI) are: Beaverhead River -2.4; Ruby River -0.9; Big Hole River -1.6; Boulder River +0.1.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
RED ROCK RIVER near Monida (2)	APR-JUL	33	55	70	67	85	107	105
	APR-SEP	37	62	79	69	96	122	114
BEAVERHEAD RIVER near Grant (2)	APR-JUL	18.0	68	102	68	136	186	149
	APR-SEP	21	82	123	71	164	225	174
BEAVERHEAD RIVER at Barratts (2)	APR-JUL	47	103	141	73	179	235	192
	APR-SEP	58	125	170	76	215	280	224
RUBY RIVER near Alder	APR-JUL	49	65	75	84	86	101	89
	APR-SEP	57	76	89	84	102	121	106
BIG HOLE RIVER near Melrose	APR-JUL	345	460	535	77	610	725	696
	APR-SEP	370	490	575	76	660	780	757
BOULDER RIVER near Boulder	APR-JUL	45	70	87	96	104	129	91
	APR-SEP	48	75	93	96	111	139	97
WILLOW CREEK near Harrison	APR-JUL	8.2	13.3	16.8	90	20	25	18.7
	APR-SEP	10.0	15.0	19.0	90	23	28	21
JEFFERSON RIVER near Three Forks	APR-JUL	435	670	835	80	1000	1240	1042
	APR-SEP	470	740	920	80	1100	1370	1156

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LIMA	84.0	18.9	9.8	35.6
CLARK CANYON	255.6	82.6	103.0	144.5
RUBY RIVER	38.8	20.8	21.2	23.8

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
BEAVERHEAD	21	54	65
RUBY	8	90	88
BIGHOLE	15	82	79
BOULDER	13	98	84
JEFFERSON	48	70	75

MADISON RIVER BASIN

January mountain precipitation was about 130 percent of average. Snowpack in the area above Hebgen Lake is a little below average while the downstream drainages are near average. Reservoir storage is about average. Spring and summer streamflows are forecast to be about 80 percent of average in the Upper Basin and around 85 percent of average at Ennis Lake. Surface Water Supply Index (SWSI) for the Madison River is -1.5.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---		FUTURE			---WETTER--->	
		-----		CHANCE OF EXCEEDING *			-----	
MADISON RIVER near Grayling (2)	APR-JUL	250	285	310	79	335	370	390
	APR-SEP	330	375	405	81	435	480	499
MADISON RIVER near McAllister (2)	APR-JUL	470	535	580	85	625	690	680
	APR-SEP	595	675	730	85	785	865	856

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
ENNIS LAKE	41.0	29.1	31.0	34.7
HEBGEN LAKE	377.5	254.1	266.3	242.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
MADISON above HEBGEN	11	73	82
LOWER MADISON	11	99	94
MADISON	22	85	88

GALLATIN RIVER BASIN

Snowpack in the Upper Gallatin is near average while the East Gallatin tributaries have a little below average snow cover. January mountain precipitation was about 110 percent of average. Middle Creek Reservoir storage is a little above average. Spring and summer streamflows are forecast to be near average. The Surface Water Supply Index (SWSI) for the Gallatin River Drainage is -0.3.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---		FUTURE		--WETTER--->		
		-----		CHANCE OF EXCEEDING *		-----		
GALLATIN RIVER near Gateway	APR-JUL	355	405	440	96	475	525	460
	APR-SEP	420	475	515	95	555	610	540
E & W FK. HYALITE CR. nr Bozeman	APR-JUL	15.0	20	23	96	26	31	24
	APR-SEP	18.0	23	26	93	29	34	28
HYALITE CREEK near Bozeman (2)	APR-JUL	27	32	36	95	40	45	38
	APR-SEP	33	38	42	95	46	51	44
GALLATIN RIVER at Logan	APR-JUL	360	455	520	98	585	680	528
	APR-SEP	445	540	605	98	670	765	616

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
MIDDLE CREEK	8.0	4.7	3.9	3.4

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
UPPER GALLATIN	9	114	97
EAST GALLATIN	12	113	90
GALLATIN	18	109	93

MAINSTEM MISSOURI RIVER BASIN

Mountain precipitation was about 125 percent of average for January. Snowpack is near average along the Continental Divide and in the Belt Mountains. Reservoir storage is a little below average. Streamflows are forecast to be below average on the Missouri River but near to above average on streams flowing into the Missouri River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE	--WETTER--->				
		-----	CHANCE OF EXCEEDING *	-----				
MISSOURI RIVER at Toston (2)	APR-JUL	1260	1620	1860	83	2120	2480	2250
	APR-SEP	1450	1860	2160	83	2430	2850	2590
PRICKLY PEAR CREEK nr Clancy	APR-JUL	8.0	18.0	25	96	32	42	26
	APR-SEP	10.0	21	29	94	37	49	31
SUN RIVER at Gibson Dam (2)	APR-JUL	475	560	620	126	680	765	494
	APR-SEP	530	620	680	125	740	830	542
MISSOURI RIVER at Fort Benton (2)	APR-JUL	1980	2640	3090	89	3540	4230	3470
	APR-SEP	2270	3030	3570	89	4070	4870	3990
MARIAS RIVER near Shelby (2)	APR-JUL	365	460	525	110	665	870	478
	APR-SEP	380	480	550	110	695	910	501
MISSOURI RIVER at Virgelle (2)	APR-JUL	2300	3090	3600	91	4240	5150	3960
	APR-SEP	2610	3510	4110	91	4820	5850	4500
MISSOURI RIVER near Landusky (2)	APR-JUL	2500	3400	4010	93	4700	5780	4310
	APR-SEP	2840	3870	4560	93	5340	6570	4900
MISSOURI RIVER below Fort Peck (2)	APR-JUL	2390	3320	3960	93	4730	5840	4260
	APR-SEP	2690	3740	4480	93	5330	6580	4800
LAKE SAKAKAWEA Inflow (2)	APR-JUL	6930	9020	10400	95	12000	14300	11000
	APR-SEP	7690	10000	11600	95	13300	15900	12200

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
CANYON FERRY LAKE	2043.0	1481.0	1377.0	1621.0
HELENA VALLEY	9.2	3.7	4.9	5.2
LAKE HELENA	10.4	10.9	10.9	10.2
HAUSER & HELENA	61.9	63.1	63.0	60.9
HOLTER LAKE	81.9	74.9	80.6	71.6
FORT PECK LAKE (MAF)	18.9	11.2	12.4	15.1

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
MISSOURI HEADWATERS	77	79	81
WEST SIDE MISSOURI	9	113	97
SMITH-BELT	5	113	105
MAINSTEM MISSOURI	14	113	100
SUN-TETON-MARIAS	7	125	123
JUDITH-MUSSELSHELL	8	135	111
MISSOURI above FORT PECK	96	87	87
MILK RIVER	11	131	108
MISSOURI in MONTANA	105	89	88
MISSOURI blw YELLOWSTONE	201	104	95

SMITH-JUDITH-MUSSELSHELL RIVER BASINS

January mountain precipitation was about average. Snowpacks are generally a little above average with well above average snow in the Snowy Mountains. Reservoir storage is near average except for below average at Deadman's Basin. Spring and summer streamflows are forecast to be near to above average. The Surface Water Supply Index (SWSI) for the Smith River is +2.1 and +0.4 for the Musselshell River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
SMITH RIVER nr Ft. Logan	APR-JUL	42	65	81	119	97	120	68
	APR-SEP	54	78	95	119	112	137	80
SHEEP CREEK nr White Sulphur Sprg	APR-JUL	19.3	22	23	122	25	27	18.8
	APR-SEP	23	25	27	123	29	31	22
N.F. MUSSELSHELL near Delphine	APR-JUL	4.6	5.5	6.2	111	6.9	7.8	5.6
	APR-SEP	5.1	6.2	7.0	109	7.8	8.9	6.4
S.F. MUSSELSHELL above Martinsdale	APR-JUL	26	47	61	107	75	96	57
	APR-SEP	29	50	65	107	80	101	61

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
SMITH RIVER	10.6	6.1	1.5	6.7
NEWLAN CREEK	12.4	8.7	7.0	8.8
BAIR	7.0	3.8	0.6	4.0
MARTINSDALE	23.1	10.4	0.2	9.9
DEADMAN'S BASIN	72.2	29.5	12.8	45.2

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
SMITH-BELT	5	113	105
JUDITH-MUSSELSHELL	8	135	111

SUN-TETON-MARIAS RIVER BASINS

January mountain precipitation was about 180 percent of average. Snowpacks are 20 to 25 percent above average. Storage is above average in all reservoirs. Streamflows are forecast to be 10 to 30 percent above average this spring and summer. The Surface Water Supply Index (SWSI) is +3.4 for the Sun River and +3.3 for the Marias River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---		FUTURE			---WETTER--->	
		-----		CHANCE OF EXCEEDING *			-----	
SUN RIVER at Gibson Dam (2)	APR-JUL	475	560	620	126	680	765	494
	APR-SEP	530	620	680	125	740	830	542
TWO MEDICINE CREEK near Browning	APR-JUL	176	225	260	117	295	345	222
	APR-SEP	192	240	275	117	310	360	235
BADGER CREEK near Browning (2)	APR-JUL	83	109	126	118	143	169	107
	APR-SEP	99	127	145	118	164	191	123
SWIFT RESERVOIR INFLOW nr Dupuyer	APR-JUL	49	69	83	119	97	117	70
	APR-SEP	62	83	97	118	111	132	82
DUPUYER CREEK near Valier	APR-JUL	3.9	14.7	22	130	29	40	16.9
	APR-SEP	5.1	16.3	24	128	32	43	18.7
CUT BANK CREEK at Cut Bank	APR-JUL	73	90	102	111	114	131	92
	APR-SEP	84	101	112	112	124	140	100
MARIAS RIVER near Shelby (2)	APR-JUL	365	460	525	110	665	870	478
	APR-SEP	380	480	550	110	695	910	501

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
GIBSON	99.1	59.2	24.7	43.0
PISHKUN	32.0	18.9	19.7	17.1
WILLOW CREEK	32.2	30.3	22.9	20.4
LOWER TWO MEDICINE LAKE	11.9	12.0	11.9	7.7
FOUR HORNS LAKE	19.2	13.2	14.0	12.3
SWIFT	30.0	20.4	11.6	13.6
LAKE FRANCES	112.0	92.5	41.6	68.5
LAKE ELWELL (TIBER)	1347.0	780.1	646.8	558.0

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
SUN-TETON	3	123	121
MARIAS	4	125	125
SUN-TETON-MARIAS	7	125	123

ST. MARY and MILK RIVER BASINS

Mountain precipitation was about 175 percent of average in January. Snowpacks are near average in the Milk River headwaters and a little above average in the Bear Paw Mountains and in the St. Mary River headwaters. Reservoir storage is near to above average. Runoff this spring and summer is forecast to be about average on the St. Mary River and 110 percent of average on the Milk River.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE	CHANCE OF EXCEEDING *		---WETTER--->		
SWIFTCURRENT CREEK at Sherburne (	APR-JUL	90	101	108	98	115	126	110
	APR-SEP	112	122	129	101	136	146	128
ST. MARY RIVER near Babb (2)	APR-JUL	340	380	405	100	430	470	404
	APR-SEP	425	460	485	102	510	545	474
MILK RIVER at Eastern Crossing	MAR-SEP	78	97	110	113	139	181	97
MILK RIVER at Eastern Crossing (2)	MAR-SEP	265	280	290	107	315	350	270

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
LAKE SHERBURNE	64.3	33.9	28.2	21.8
FRESNO	127.0	84.2	6.6	51.2
BEAVER CREEK	3.5	2.6	0.5	1.8
NELSON	66.8	37.4	3.7	37.3

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
MILK HEADWATERS	4	118	106
BEAR PAW	7	175	114
MILK RIVER	11	131	108
ST. MARY	5	121	110
ST. MARY and MILK	12	130	111
BOW RIVER in ALBERTA	7	154	102
OLDMAN RIVER in ALBERTA	5	160	126

UPPER YELLOWSTONE RIVER BASIN

Most Yellowstone River tributaries have near average snowpack except for the Shields River which is a little below average. January mountain precipitation was about average. Streamflows are forecast to be a little below average on the upper reaches of the Yellowstone but near average on other drainages. The Surface Water Supply Index (SWSI) are: Yellowstone River above Livingston +0.5; Shields River -0.2; Boulder River +0.6; Stillwater River +0.8; Clarks Fork River +0.8 and Yellowstone River above the Bighorn River +0.6.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER---> CHANCE OF EXCEEDING * 90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
YELLOWSTONE at Lake Outlet	APR-JUL	395	470	520	88	570	645	590
	APR-SEP	555	650	715	87	780	875	818
YELLOWSTONE at Corwin Springs	APR-JUL	1240	1390	1500	91	1610	1760	1650
	APR-SEP	1490	1670	1800	90	1930	2110	2000
YELLOWSTONE at Livingston	APR-JUL	1450	1630	1760	92	1890	2070	1920
	APR-SEP	1760	1970	2120	91	2270	2480	2330
SHIELDS RIVER near Livingston	APR-JUL	85	138	174	104	210	265	168
	APR-SEP	101	156	193	103	230	285	187
BOULDER RIVER at Big Timber	APR-JUL	270	320	355	101	390	440	353
	APR-SEP	295	350	385	100	420	475	384
WEST ROSEBUD CREEK near Roscoe	APR-JUL	51	59	64	100	70	78	64
	APR-SEP	69	77	83	100	89	97	83
STILLWATER RIVER nr Absarokee (2)	APR-JUL	380	470	530	101	590	680	524
	APR-SEP	490	580	640	102	700	790	625
CLARKS FORK RIVER near Belfry	APR-JUL	415	485	530	98	575	645	540
	APR-SEP	475	545	595	99	645	715	603
RED LODGE CREEK near Boyd (2)	APR-JUL	22	39	51	104	63	80	49
	APR-SEP	33	50	62	103	74	91	60
YELLOWSTONE RIVER at Billings (2)	APR-JUL	2950	3370	3630	97	3890	4300	3740
	APR-SEP	3480	3970	4280	97	4590	5070	4410

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
MYSTIC LAKE	21.0	4.7	5.6	9.4
COONEY	27.4	21.2	19.2	13.8

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
YELLOWSTONE ab LIVINGSTON	18	101	93
SHIELDS	6	102	86
BOULDER-STILLWATER	6	119	108
CLARK'S FORK-ROCK CREEK	14	111	94
YELLOWSTONE above BIGHORN	39	106	94

LOWER YELLOWSTONE RIVER BASIN

January mountain precipitation in the Bighorn Mountains was near average. Snowpacks are well above average in the northern Bighorn Mountains decreasing to above average in the Powder River headwaters. Storage in Tongue River Reservoir is a little above average. Spring and summer streamflows are forecast to be below average on the Bighorn River, near average on the Yellowstone and Powder Rivers, a little above average on the Tongue and well above average on the Little Bighorn. The Surface Water Supply Index (SWSI) for the Little Bighorn River is +3.1 and +2.9 for the Tongue River

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	25YR (KAF)
		<---DRIER---	FUTURE	--WETTER--->				
		-----	CHANCE OF EXCEEDING	*	-----			
YELLOWSTONE RIVER at Billings (2)	APR-JUL	2950	3370	3630	97	3890	4300	3740
	APR-SEP	3480	3970	4280	97	4590	5070	4410
BIG HORN RIVER nr St. Xavier (2)	APR-JUL	900	1250	1490	86	1730	2080	1730
	APR-SEP	1000	1380	1660	86	1920	2300	1920
LITTLE BIGHORN at Hardin	APR-JUL	70	124	160	108	192	240	148
	APR-SEP	78	140	180	108	215	270	167
TONGUE RIVER near Decker (2)	APR-JUL	123	220	285	118	345	440	242
	APR-SEP	134	240	310	118	375	475	262
YELLOWSTONE RIVER at Miles City (	APR-JUL	3950	4850	5470	97	6030	6940	5640
	APR-SEP	4560	5600	6290	97	6970	8010	6510
POWDER RIVER near Locate	APR-JUL	103	215	295	106	350	435	278
	APR-SEP	112	235	320	106	380	470	302
YELLOWSTONE RIVER near Sidney (2)	APR-JUL	4130	5260	6000	96	6700	7760	6260
	APR-SEP	4750	6050	6920	96	7700	8930	7200

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.
BIGHORN LAKE	1356.0	793.2	707.2	683.0
TONGUE RIVER	68.0	34.9	39.1	27.7

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR.	AVERAGE
BIG HORN (Wyoming)	58	129	101
LITTLE BIGHORN	5	183	144
TONGUE RIVER (Wyoming)	15	171	125
POWDER RIVER (Wyoming)	14	178	116
YELLOWSTONE RIVER	108	124	101